DOCUMENT RESUME

ED 480 077 CG 032 650

AUTHOR	Lewis, Phil; Rivkin, David
TITLE	Improving Work Life Decisions: O*NET Career Exploration Tools.
PUB DATE	2003-08-00
NOTE	18p.; In: Measuring Up: Assessment Issues for Teachers, Counselors, and Administrators; see CG 032 608.
PUB TYPE	Information Analyses (070) -- Reports - Descriptive (141)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	*Career Exploration; *Evaluation Methods; *Measures (Individuals); *Vocational Interests
IDENTIFIERS	*Career Assessment

ABSTRACT

In May 2001 the Occupational Information Network (O*NET) released to the public several O*NET Career Exploration Tools designed to help clients learn information about themselves for use in focusing their career search. This chapter provides a practical overview of relevant information about the O*NET Career Exploration Tools, including a description of the O*NET project, why a new set of tools was needed, an overview of each tool, and a description of the support materials available for each instrument. (Contains 20 references.) (GCP)

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ED 480 077

*Improving Work Life Decisions: O*NET Career Exploration Tools*

By
Phil Lewis
David Rivkin

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Chapter 42
Improving Work Life Decisions
O*NET™ Career Exploration Tools

Phil Lewis & David Rivkin

In May 2001 the Occupational Information Network (O*NET), a project of the U.S. Department of Labor (DOL) Employment and Training Administration (ETA), released to the public several O*NET Career Exploration Tools: O*NET Interest Profiler and Computerized Interest Profiler, O*NET Work Importance Locator and Work Importance Profiler, and O*NET Ability Profiler. These tools are designed to help clients learn information about themselves for use in focusing their career search. O*NET Career Exploration Tools assist clients in identifying occupations for which they (a) have basic interests that will be supported by those occupations, (b) place a high value on work outcomes that the occupations will provide, and (c) have (or can learn) the necessary knowledge and skills. The tools were developed for use by the wide variety of clients served by DOL initiatives (e.g., dislocated worker, One Stop System, school to work, veterans' programs, welfare to work, and youth opportunity); program staff providing service to individual clients (e.g., counselors, teachers, intake personnel); and application developers who wish to incorporate the tools into products for specific organizations, businesses, or groups of clients.

Career exploration can help clients make critical work life decisions. O*NET Career Exploration Tools enable clients accurately and reliably to identify their interests, valued work outcomes, and abilities. Emphasis is placed on *whole-person assessment,* which uses different pieces of information about an individual to help that person explore careers and make career decisions, and considers profiles of information rather than relying on a single score (for example, assaying what one's likes and strengths are, as well as where dislikes and areas needing improvement lie). Once clients have gathered information about themselves, they are directed to O*NET occupations linked to the assessment information. Clients can then take advantage of the many systems that use O*NET occupations to discover a variety of information about potential occupations, including descriptions and

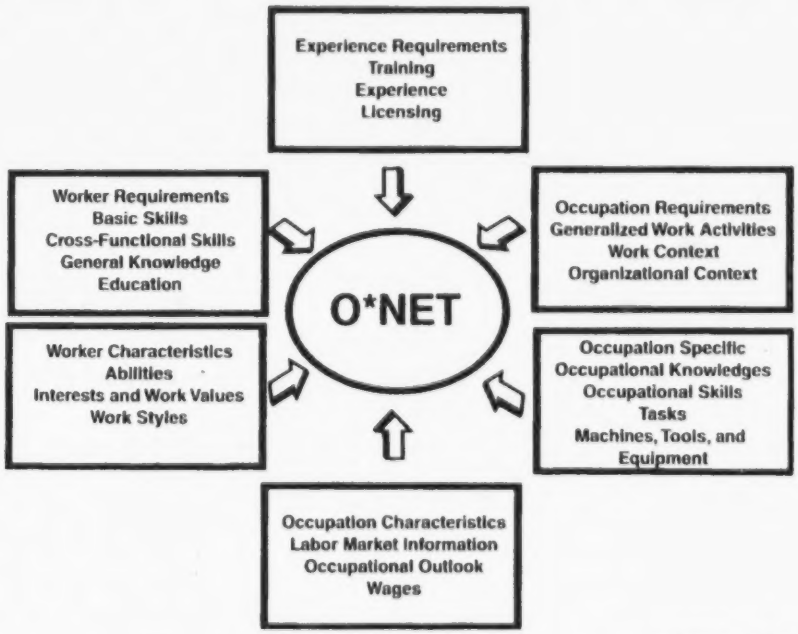
requirements, related labor market information, job listings, and training opportunities.

This chapter provides a practical overview of relevant information about the O*NET Career Exploration Tools, including a description of the O*NET project, why a new set of tools was needed, an overview of each tool, and a description of the support materials available for each instrument.

The Occupational Information Network Project

O*NET is a comprehensive database system for collecting, organizing, describing, and disseminating information on occupational characteristics and worker attributes. O*NET was conceived of as a conceptual model to replace the outmoded *Dictionary of Occupational Titles* (U.S. Department of Labor, 1991) and to provide information on transferable skills and other occupational requirements for meeting the needs of the twenty-first-century workforce. See Figure 1 for an overview of the O*NET content model. For a detailed description of the development of the content model, see *An Occupational Information System for the 21st Century: The Development of O*NET* (Peterson, Mumford, Borman, Jeanneret, & Fleishman, 1999).

Figure 1.



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An occupational database was developed containing analysts' ratings of the importance, level, and frequency (where appropriate) of each of the elements in the O*NET content model. The first O*NET database, named O*NET 98, contained analysts' ratings for O*NET Occupational Units (OUs) based on the 1996 Occupational Employment Statistics (OES) program classification system. Both the O*NET and OES programs have now been incorporated in the 2000 edition of the Standard Occupational Classification (SOC) system (Executive Office of the President, Office of Management and Budget, 2000), which led to the release in July 2000 of the O*NET 3.0 database and a web-based accessing application, O*NET OnLine; http://online.onetcenter.org. The new O*NET-SOC classification is compatible with the SOC but provides additional breakouts of certain SOC detailed occupations. For more information on the O*NET-SOC system, see *Transitioning O*NET to the Standard Occupational Classification* (Levine, Nottingham, Paige, & Lewis, 2000) and the introduction to *O*NET Occupational Listings: Database 3.1* (Lewis, Russos, & Frugoli, 2001).

In April 2001 the Office of Management and Budget authorized a new O*NET data collection effort. Four O*NET survey questionnaires—Skills, Knowledge, Generalized Work Activities, and Work Context—are being sent to job incumbents at randomly selected businesses across the country. These job incumbents are being asked to provide ratings for the O*NET elements based on their own work experience. A fifth O*NET survey questionnaire is being used by job analysts to generate data for the elements in the Abilities domain. To facilitate timely and complete responses from incumbent workers, the survey instruments underwent significant improvements from the 1998 versions, including (a) reduction in the reading level and cognitive burden required to complete the surveys, and (b) elimination of items and response scales with poor conceptual and empirical support. These changes to the survey will lead to the development of a database that is more accurate and friendlier for end users. For a detailed discussion of the survey review process, see *Revision of O*NET Data Collection Instruments* (Hubbard et al., 2000). As of 2002, data for approximately 180 occupations are available, and new data updates are being made roughly twice a year beginning in the spring of 2003.

Need for O*NET Career Exploration Tools

For several decades, the DOL has been providing assessment tools for use by employment security agencies and other initiatives. By the

mid-1990s the need to update and redesign the available assessment tools was apparent from a variety of sources, including (a) information gathered from a series of informal focus groups conducted by the DOL in 1995 with a number of program and agency representatives, (b) general feedback the department received from counselors and program leaders serving the DOL community, (c) the transition from *Dictionary of Occupational Titles* to O*NET-based occupational information, and (d) advances in computer technology that the educational and vocational fields could use to improve services to clients. The following section describes some of the specific need areas that were identified.

*Current Tools Linked to O*NET Occupations and Information*

Feedback from the DOL community indicated that career exploration tools available for their use were no longer adequate. The materials were outdated and results not easily linked to occupational information. For example, instruments such as the U.S. Employment Services USES Interest Inventory (U.S. Department of Labor, 1981), the Interest Check List (U.S. Department Labor, 1979), and the Job Search Inventory (New York State Job Service, 1985) contained dated language and content that clients found distracting or confusing. A review by the National Research Council indicated that the USES General Aptitude Test Battery (GATB; U.S. Department of Labor, 1970) needed substantial updates (see Hartigan & Wigdor, 1989). In addition, no existing DOL assessment tools for measuring abilities or work values were specifically designed for clients engaged in career exploration. Finally, all existing tools were based on the data, theoretical models, and occupations found within the *Dictionary of Occupational Titles*. As a result, counselors had to use their personal review of results and general knowledge of the world of work to indirectly link client results to occupations. Counselors were looking for an easy way to implement standardized methodology for identifying potential occupations for clients. In addition, assessments were needed that would fit the more current information and theoretical models to be available in the new O*NET database and that would foster additional exploration of occupations in the O*NET system. Finally, there was a need for tools that would be readily available and deliverable via recent advances in computer technologies.

Self-Help Tools

Counselors and program administrators also indicated that they wanted the DOL to initiate more self-help services for their clients. Because of resource constraints, clients were receiving less counselor and one-on-one attention than in the past. Therefore, counselors needed assessment tools that clients could self-administer, self-score, and in some cases, self-interpret. Counselors and program staff wanted tools that could augment or assist clients with their career search, rather than tools that left clients dependent on counselors for all aspects of the assessment process (i.e., administration, scoring, interpretation).

Requests for self-help tools were also motivated by counselors' desire to give clients more control over important work life decisions. As mentioned earlier, in many DOL programs, career exploration was considered to be critical in making successful work life decisions. Tools that allow clients to conduct their search on their own can empower them and give them a strong sense of self-efficacy over their career search.

The availability of personal computers and networked systems also made the development of self-help tools more feasible. Assessments could be computer-scored, allowing for rapid, accurate processing of complex scoring algorithms. Score reports could be generated on a real-time basis and customized based on the individual client's scores.

Whole-Person Assessment

As mentioned previously, whole-person assessment uses a variety of pieces of information, and profiles of information rather than single scores, to help individuals explore careers. Feedback from experts in vocational and educational fields indicated that the reliance on a single score from a single type of vocational assessment did not take into account the complexities or the importance of the decisions that individual clients were making during career exploration. In addition, as described in the previous section, one-on-one counseling sessions during which the counselor would review the client's assessment score and then make broad interpretations and career recommendations were no longer feasible at many DOL program and initiative sites.

Expanding Career Possibilities

Feedback from DOL clients, counselors, and program staff indicated that many of the available assessment tools were too restrictive in the number of career options they generated. After taking an assessment, clients would frequently be presented with two, possibly

three occupations to explore. What if they did not like any of the options presented? Students also were found to have need of career information; when students were asked during focus groups what they wanted to do for a living, typical responses were either high-profile occupations seen on television, many of which require advanced degrees (e.g., doctor, lawyer) or were occupations unlikely to have a large number of job openings in the future (e.g., train conductor). What if clients preferred to attend trade school rather than graduate school? What if the three identified occupations for a particular client were all low-growth occupations? Feedback from the field indicated a need to develop tools that would expand career possibilities, rather than narrow them. Clients should learn during career exploration that there are many different types of occupations (more than are portrayed on television) that require a wide range of education, training, and work experience. Career exploration needed to provide clients with lots of options so they would remain engaged and eventually make satisfying career decisions, rather than run into a dead end and become frustrated.

Technical Quality of the O*Net Career Exploration Tools

Many of the assessment tools available to DOL initiatives and programs did not have strong technical underpinnings, lacking adequate research and data on important psychometric characteristics (e.g., reliability, validity). The interpretation materials and client feedback guidelines did not cover all the information recommended by current professional guidelines. During the development of the O*NET Career Exploration Tools, extensive research was conducted examining the accuracy, reliability, and usefulness of the information these tools generated. Steps were taken to ensure that the tools were fair and unbiased for the wide variety of clients that the DOL serves. During development, data were collected across the country from several thousand individuals with a wide range of characteristics (e.g., age, race, gender, education, socioeconomic status). The tools also went through extensive pilot testing and tryouts in many different types of DOL-sponsored initiatives (e.g., school to work, One-Stop Systems, high schools, dislocated worker programs, employment service offices). Lastly, current professional standards and principles served as guidelines for the research to develop each tool, the design of information reported to clients, and the creation of the technical documentation describing each tool. (These included *Standards for Educational and Psychological Testing*, AERA, APA & NCME,1999, and *Principles for the Validation*

and Use of Personnel Selection Procedures, Society for Industrial and Organizational Psychology, 1987.) For a listing of available development and technical reports associated with the O*NET Career Exploration Tools see the "Bibliography of Materials and Reports" at the end of this chapter or go to www.onetcenter.org

Overview of O*NET Career Exploration Tools

The O*NET Career Exploration Tools were designed using occupational information contained within the O*NET database. The tools serve as a gateway into the O*NET system, allowing clients to identify a subset of the 974 O*NET-SOC occupations that they may want to explore further. Clients can use O*NET OnLine or other applications that contain the O*NET classification or database. Although these tools help clients assess three important pieces of vocational and career information, additional pieces of vocational information are likely to be relevant to their whole-person assessment of themselves and of possible occupations to pursue. The O*NET content model serves as a valuable resource for identifying additional types of occupational information and worker requirements for consideration during clients' career exploration (e.g., occupational skills, knowledges). Other tools assessing similar information as the O*NET Career Exploration Tools are available and can be used effectively to access O*NET information. A brief summary of each O*NET Career Exploration Tool follows, including a description of Job Zones, an important component of the O*NET assessments.

*O*NET Interest Profiler or O*NET Computerized Interest Profiler and Job Zones*

The Interest Profiler and Computerized Interest Profiler measure six vocational interest areas identified in the Holland RIASEC model (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional; Holland, 1985, 1997). The assessment is self-administered via paper and pencil or computer, is self-scored, and includes a self-interpretable score report and occupational listing. It contains 180 work activity items that are representative of the entire world of work, with each RIASEC construct being represented by 30 items. Both versions of the Interest Profiler take between 20 and 30 minutes to complete. Test takers indicate whether they "Like," "Dislike," or are "Unsure" whether they like each activity. The paper-and-pencil version of the instrument enables clients to identify their top interests,

which they can then use to locate occupations on the O*NET Interest Profiler Score Report. The computerized version compares the individual's entire RIASEC interest profile (i.e., all six interest areas) to the interest profiles of the occupations in the O*NET database and generates a list of potential occupations for the client.

In addition to receiving interest results, clients taking either version of the Interest Profiler are also asked to select a Job Zone to help them focus their occupational search. The five levels of Job Zones represent the levels of experience, training, and education required for various occupations, with Job Zone 1 requiring the least career preparation and Job Zone 5, the most. O*NET Career Exploration Tool Score Reports present occupational lists sorted first by the variable being measured (e.g., interests, work values, or abilities) then by Job Zone. By allowing clients to select a Job Zone, the O*NET Career Exploration Tools help them focus on whether they have sufficient education and training of the right type for a particular occupation. They can then make decisions about whether they need and are willing to pursue additional education or training.

After taking the Interest Profiler and selecting a Job Zone, clients use that Job Zone with their interest results to identify occupations to explore. On the paper-and-pencil version, clients may, for example, identify the Investigative area as their primary interest area and Job Zone 4 as their desired level of education to identify careers meeting these criteria. (The Computerized Interest Profiler would use the clients' complete six-score interest profile and their selected Job Zone to generate a list of appropriate occupations.) For a description of the development of the Job Zones, see *Stratifying Occupational Units by Specific Vocational Preparation* (Oswald, Campbell, McCloy, Rivkin, & Lewis, 1999).

*O*NET Work Importance Locator and O*NET Work Importance Profiler*

The two versions of this tool measure six important work values (Achievement, Independence, Recognition, Relationships, Support, and Working Conditions) modified from the theory of work adjustment. (In the original theory of work adjustment, the six work values were labeled Achievement, Autonomy, Status, Altruism, Safety, and Comfort; see Dawis & Lofquist, 1984; Dawis, Lofquist, & Weiss, 1968; Lofquist & Dawis, 1969; Weiss, Dawis, England, & Lofquist, 1964.) Both instruments are similar, but whereas the O*NET Work Importance Locator is a paper-and-pencil instrument, the O*NET Work Importance

Profiler is computerized. Each takes approximately 30 to 40 minutes to complete.

The O*NET Work Importance Locator is a self-administered, paper-and-pencil instrument. The test taker is asked to sort 21 work outcomes and need statements into five categories based on their importance to him or her. This sorting exercise results in the identification of two primary work values. The individual can use these work values, with a selected Job Zone, to identify occupations to explore in the Work Importance Locator Score Report. This score report provides lists of O*NET occupations sorted by work value and Job Zone.

The O*NET Work Importance Profiler is computerized. Individuals first rank the importance of 21 need statements, presented in pairs on a series of computer screens. They then rate each of the 21 statements as to whether it represents something they consider important Using the results of the ranking and rating exercises and a selected Job Zone, the computer searches the O*NET database for compatible occupations and generates lists of each individual's most important work values and of occupations that may satisfy these work values.

*O*NET Ability Profiler*

This tool measures nine abilities related to job performance: Verbal, Arithmetic, Computation, Spatial, Form Perception, Clerical Perception, Motor Coordination, Manual Dexterity, and Finger Dexterity. The instrument consists of 11 separate subtests, 6 of which are in paper-and-pencil format (Arithmetic Reasoning, Vocabulary, Three Dimensional Space, Computation, Name Comparison, and Object Matching), and 5 of which are psychomotor in nature (Mark Making, Place, Turn, Assemble, and Disassemble). Vocational counselors may administer the entire test battery, (which takes 2 to $2^{1}/_{2}$ hours) or just the paper-and-pencil tests (which takes $1^{1}/_{2}$ to 2 hours), depending on a client's needs. The instrument is scored by computer, providing a customized score report for each individual. The report includes the individual's ability profile scores, percentile information, and five lists of O*NET occupations with ability profiles similar to the client's, one for each Job Zone.

*O*NET Career Exploration Tools and Materials*

The various career instruments have a number of associated materials and reports (see the bibliography or go to www.onetcenter.org for a complete list of available materials and reports). Each instrument has a user's guide designed to help workforce development professionals

incorporate the instruments into their programs. The guides cover such topics as means of administration, use of score reports, interpretation of results, possible client challenges, and instrument development. More thorough psychometric information about the instruments are provided in detailed development and technical reports. The paper-and-pencil O*NET Interest Profiler and Work Importance Locator have associated score reports, which help each test taker interpret his or her results and link them to lists of occupations provided with the report. These paper-and-pencil instruments also have master lists of occupations, which clients can link to their results. There is also a Combined Interest and Work Values Occupations List that enables clients to search for occupations according to their primary interests and work values. Additionally, for the Ability Profiler, there are separate administration and administrator training manuals, as well as instrument scoring software and scoring software user manuals. These materials in total enable workforce development professionals to take advantage of and successfully implement the O*NET Career Exploration Tools.

Availability and Use of O*NET Career Exploration Tools

The O*NET Career Exploration Tools and materials are available through two sources. They can be purchased through the Government Printing Office, or downloaded free of charge from the O*NET website: www.onetcenter.org. Counselor and client feedback from the field indicate that the tools are easy to use with a wide variety of individuals. Many clients can take the instruments independently and self-interpret the results. Career counselors appreciate the flexibility of the tools, including the ability to select one or several of the tools to collect multiple pieces of information, depending on clients' individual needs. Additionally, the concept of whole-person assessment resonates with both clients and workforce development professionals. Finally, workforce development professionals appreciate the technical quality of the instruments, which allows them to have confidence in the results clients receive and the mechanisms used to link results directly to occupations that they can explore further in O*NET and other systems that incorporate O*NET.

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